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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,837	04/13/2004	Masahiro Shige	119432	3260

25944 7590 08/29/2008

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EXAMINER	
RAMADAN, RAMY O	
ART UNIT	**PAPER NUMBER**
2838	

MAIL DATE	DELIVERY MODE
08/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/822,837	SHIGE ET AL.	
	Examiner	Art Unit	
	RAMY RAMADAN	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 05/14/2008 have been fully considered but they are not persuasive.

In response to applicant's argument in Pages 4-6 regarding claims 1, 6 and 7 that:

"Haniya does not disclose or suggest setting an output terminal voltage of said fuel cell to an open circuit voltage via said voltage converter",

"However, although this passage includes the keyword "output voltage", that phrase does not refer to an output voltage of said fuel cell, as recited in claim 1 (and similarly recited in claims 5 and 6), but rather refers to the output voltage of a current sensor. As discussed in the personal interview, and as is well known to one of ordinary skill in the art, the output voltage of a current sensor is not the voltage on the line where the current sensor senses. Thus, paragraph [0016] does not disclose or suggest setting an output terminal voltage of said fuel cell to an open circuit voltage via said voltage converter, as recited in claim 1, and similarly recited in claims 6 and 7",

"During the personal interview, Supervisory Examiner Vu asserted that Applicants' position, as explained above, may be a "piecemeal" argument which allegedly fails to appreciate that the outstanding rejection is under 35 U.S.C. § 103(a) over a combination of references. However, as explained during the personal interview, even if one places the current sensor disclosed in Haniyu in the system disclosed in Kawai, the current sensor would still only shift the output voltage V1 of the current

sensor, as disclosed in paragraph [0025], and not the voltage on the line it senses. As explained above, Drawing 1 clearly shows that output voltage V1 and the voltage on the line the current sensor senses are distinct." and

"Further, even if incorrectly assuming that an output voltage of a current sensor can affect an input voltage of the current sensor, changing the input voltage of the current sensor does not inherently change a voltage of an output terminal of the fuel cell. Thus Haniyu does not disclose or suggest setting an output terminal voltage of said fuel cell to an open circuit voltage via said voltage converter, as recited in claim 1, and similarly recited in claims 6 and 7. Accordingly, Haniyu does not supply the subject matter missing in Kawai. Thus, even an alleged combination of both Kawai and Haniyu does not disclose or suggest the subject matter recited in claims 1, 6 and 7"

The examiner respectfully disagrees and submits that in response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). First, the examiner would like to point out that a current sensor does not output voltage on its own, there must be a voltage or power source present, and according to the invention as disclosed by Haniyu, Haniyu discloses a device for correcting an offset voltage of a current sensor connected to a power source, which could be a fuel cell if combined with Kawai. Haniyu discloses determining an offset correction voltage value for a current sensor, same as Applicant's claimed invention, however, this is done by using a maximum output voltage (open

circuit voltage), when the current flowing through the sensor is zero, set as a correcting voltage, and then the output voltage of the current sensor is shifted by the corrected voltage, as Haniyu states "The most output voltage when at least current flowing through the current sensor 1 is zero is set as correcting voltage, and output voltage of the current sensor 1 is shifted by the correcting voltage (Abstract)" and "An offset voltage correcting method of a current sensor, wherein current which flows into a current sensor at least considers maximum output voltage in zero as a part for correction voltage, shifts output voltage of a current sensor by this correction voltage and makes polarity of output voltage the same polarity in output voltage of a current sensor (claim 1)". Therefore, the maximum output voltage as discloses by Haniyu is different from shifting the output voltage of the current sensor. Basically, since the current flowing in to the current sensor is zero, inherently and explicitly stated by Haniyu the voltage outputted from the power source and in to the current source is an open circuit voltage, which is then used to shift the output voltage of the current sensor. Therefore, the teachings and suggestions of Haniyu when combined with Kawai read on the claimed invention as claimed in claims 1, 6 and 7.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai et al. (JP 2002334712 A), hereinafter Kawai, in view of Haniyu (JP 10-319054).

As per claims 1 and 6, Kawai discloses and shows in Fig. 1, a fuel cell system comprising:

a fuel cell (10) having output terminals shown by two output lines (Fig. 1);

a DC-DC converter (16) (voltage converter), which is connected to said output terminals of said fuel cell (10) and is capable of adjusting the output voltage of the fuel cell to a desired voltage (which can be an open circuit voltage) (Abstract);

a rechargeable battery (17) (electrical storage device) that is connected in parallel to said fuel cell through the DC-DC converter, which is capable of charging and discharging (Page 1, Para [0010];

a current sensor (20), which detects the current value output from the fuel cell to the DC-DC converter (Abstract);

a control unit (40) (offset correction value determination device) to calculate the target generated output of a fuel cell without being influenced by a power consumption error for the current sensor (offset correction value) and thus Kawai implicitly teaches determining the power consumption error through the difference between the target generated output and the actual output (Abstract and Page 1, Para [0009] and [0011]), (Page 2, Para [0025]).

But Kawai does not explicitly discloses determining the offset correction value for said current detector by setting the output terminal voltage of said fuel cell to the open circuit voltage via said voltage converter

However, Haniyu discloses and shows in Fig. 1, a device for determining and correcting an offset voltage (offset correction value) of a current sensor (1) by setting the most or maximum output voltage (open circuit voltage), when the current flowing through the current sensor (1) is zero, to a correcting voltage (Abstract and Page 3, Para [0016]).

Haniyu is evidence that ordinary workers in the art would find a reason, suggestion or motivation to modify the device as disclosed by Kawai to include the device for determining and correcting an offset voltage as disclosed by Haniyu to provide current detection with high precision (Page 2, Para [0005]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the device as disclosed by Kawai to include the device for determining and correcting an offset voltage as disclosed by Haniyu to provide current detection with high precision (Page 2, Para [0005]).

As per claim 7, the method merely recites the steps of using the elements of the device as disclosed above and since each element must be present to perform the steps, the method as claimed in claim 7 would be obvious in view of the device as disclosed by Kawai when modified by Haniyu.

As per claims 2-3, Kawai when modified by Haniyu teaches that the fuel cell system can be used in mobile objects such as cars (moving objects), while the

operation as explained above, and shown in Fig. 1, implies that the operation is carried repeatedly with no restrictions, in addition Kawai further teaches that the control steps are carried repeatedly (Page 2, Para [0026]), which implies on periods when power generation from the fuel cell is not required which can be before the start up of the fuel cell or during regenerative operation which is a well known operation for vehicles operated by fuel cell systems.

As per claim 4, Kawai when modified by Haniyu teaches that the operation as disclosed above is performed repeatedly every predetermined period (after a prescribed time has elapsed) (Page 2, Para [0026]).

As per claim 5, Kawai when modified by Haniyu discloses the claimed invention except for when the amount of power demanded by the car exceeds the amount of power that can be supplied by said electrical storage device, said offset correction value determination device does not set the output terminal voltage of said fuel cell to the open circuit voltage and does not determine the offset correction value. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to stop the operation of determining the power consumption error as disclosed by Kawai, when the amount of power demanded by the car exceeds the amount of power that can be supplied by the rechargeable battery, to save time and power consumption, which are needed to meet the load demand.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAMY RAMADAN whose telephone number is (571) 272-9761. The examiner can normally be reached on Mon-Fri 7:30 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm Ullah can be reached on (571) 272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Akm Enayet Ullah/
Supervisory Patent Examiner, Art Unit 2838

Ramy Ramadan
Examiner
Art Unit 2838

/RR/

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/822,837	SHIGE ET AL.	
	Examiner	Art Unit	
	RAMY RAMADAN	2838	